



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup King Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 2132, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'711'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 10th day of December in the year of our Lord one thousand nine hundred and eighty-one.

Attest:

*Samuel H. ...*  
Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

*John R. Block*  
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED  
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY 75S 5511-4		1b. VARIETY NAME 711		FOR OFFICIAL USE ONLY PV NUMBER 8100013	
2. KIND NAME Wheat, Common		3. GENUS AND SPECIES NAME Triticum aestivum		FILING DATE 11/05/80	TIME 11:30 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">A.M.</span>
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION October, 1978		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 11/05/80 10/8/81
6. NAME OF APPLICANT(S) Northrup King Co.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 1500 Jackson St. N.E. Minneapolis, MN 55413		8. TELEPHONE AREA CODE AND NUMBER 612-781-5305	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Delaware		11. DATE OF INCORPORATION 1896	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Robert W. Romig Northrup King Co. 1500 Jackson St. N.E. Minneapolis MN 55440					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  
☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?  
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

Nov 3, 1980  
(DATE)

Robert W. Romig  
(SIGNATURE OF APPLICANT)

## INSTRUCTIONS

**GENERAL:** Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

## ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

## EXHIBIT A

Origin and Breeding History of the Variety

Variety 711, also designated as Experimental 75S 5511-4, is the result of hybridization and individual plant selection from the cross Minnesota II 62-61 (insensitive)/3/Justin//Conley/N.D. 122. Our pedigree for this variety is N351-4S-2A-2F-1A. The female parent, Minnesota II 62-61 (insensitive), is an Era sib with early maturity. The male parent is a line derived from Justin//Conley/N.D. 122 which we obtained from CIMMYT. We made the cross in the greenhouse at Eden Prairie, Minnesota, in the spring of 1970 and grew the F<sub>1</sub> at Yuma, Arizona, in the 1970-71 season. This was followed by individual plant selections in the F<sub>2</sub> and F<sub>5</sub> generations alternating between Minnesota and Arizona. We harvested the F<sub>6</sub> row in bulk at Moorhead, Minnesota, in 1973 to provide seed for trials and for further increase. We maintained this population as a pure-line for three generations (F<sub>7</sub>, F<sub>8</sub> and F<sub>9</sub>) and in the summer of 1976 harvested heads (F<sub>10</sub> seed) to begin a head-row program. We planted seed from individual heads in head-rows in southern California in the fall of 1976 as a first step in the development of breeder seed. We maintained the integrity of these head-row populations for three more consecutive, pure-line increases. On the basis of agronomic and quality data, in October, 1978, we selected one of these populations, 75S 5511-4, to represent the variety. Variety 711, therefore, is a pure-line derived from an F<sub>10</sub> head-row.

We expect to maintain breeders seed as pure-line increases from this head-row lot.

2  
8/22/81  
No discernible, unusual, or characteristic variants, other than tall tillers and the slight variation which might normally be expected from an F<sub>10</sub> bulk have been noted during reproduction and multiplication in the Yuma, Arizona environment. The tall tillers have been observed under conditions which may produce a border effect, such as skips within a row or between rows. The main culm or central tiller of an affected plant may extend up to 10 cm above the general plant canopy, while the lateral tillers of these plants may be 5-10 cm below the general canopy. On the basis of our experience in the multiplication and increase of variety 711, the variety appears to be uniform and stable. Foundation seed produced in 1979 has been inspected and approved by the Minnesota Crop Improvement Association.



NORTHROP KING CO.  
P.O. BOX 959, MINNEAPOLIS, MN 55440

8100013

**EXHIBIT B**

**NOVELTY STATEMENT**

Variety 711 is most similar to Solar but differs in maturity. Variety 711 heads, on average, four days earlier than Solar.

## OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) <b>Northrup King Co.</b>	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) <b>1500 Jackson Street N.E. Minneapolis, MN 55413</b>	PVPO NUMBER <b>8100013</b>
	VARIETY NAME OR TEMPORARY DESIGNATION <b>Variety 711</b>

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g.,     or   ) when number is either 99 or less or 9 or less.

## 1. KIND:

    1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

## 2. TYPE:

  1 = SPRING 2 = WINTER 3 = OTHER (Specify)   1 = SOFT 3 = OTHER (Specify)  
2 = HARD  1 = WHITE 2 = RED 3 = OTHER (Specify)

## 3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

   FIRST FLOWERING    LAST FLOWERING

## 4. MATURITY (50% Flowering):

    NO. OF DAYS EARLIER THAN     1 = ARTHUR 2 = SCOUT 3 = CHRIS  
    NO. OF DAYS LATER THAN     4 = LEMHI 5 = NUGAINES 6 = LEEDS  
7 = Solar

## 5. PLANT HEIGHT (From soil level to top of head):

    CM. HIGH     1 = ARTHUR 2 = SCOUT 3 = CHRIS  
    CM. TALLER THAN     4 = LEMHI 5 = NUGAINES 6 = LEEDS  
    CM. SHORTER THAN     7 = Solar

## 6. PLANT COLOR AT BOOTING (See reverse):

  1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

## 7. ANTHUR COLOR:

  1 = YELLOW 2 = PURPLE

## 8. STEM:

  Anthocyanin: 1 = ABSENT 2 = PRESENT   Waxy bloom: 1 = ABSENT 2 = PRESENT  
  Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT   Internodes: 1 = HOLLOW 2 = SOLID  
    NO. OF NODES (Originating from node above ground)     CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

## 9. AURICLES:

  Anthocyanin: 1 = ABSENT 2 = PRESENT   Hairiness: 1 = ABSENT 2 = PRESENT

## 10. LEAF:

  Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify):   Flag leaf: 1 = NOT TWISTED 2 = TWISTED  
  Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT   Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT  
    MM. LEAF WIDTH (First leaf below flag leaf)     CM. LEAF LENGTH (First leaf below flag leaf):

## 11. HEAD:

- ☐ 1 Density: 1 = LAX 2 = DENSE
- ☐ 4 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE  
4 = OTHER (Specify) oblong  
8/18/81
- ☐ 4 Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED
- ☐ 1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED  
5 = BROWN 6 = BLACK 7 = OTHER (Specify):

☐ 1 0 CM. LENGTH ☐ 0 9 MM. WIDTH

## 12. GLUMES AT MATURITY:

- ☐ 2 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)
- ☐ 3 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)
- ☐ 1 1 = Glabrous 2 = Pubescent
- ☐ 2 Shoulder: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED  
shape: 4 = SQUARE 5 = ELEVATED 6 = APICULATE
- ☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

## 13. COLEOPTILE COLOR:

- ☐ 1 1 = WHITE 2 = RED 3 = PURPLE

## 14. SEEDLING ANTHOCYANIN:

- ☐ 1 1 = ABSENT 2 = PRESENT

## 15. JUVENILE PLANT GROWTH HABIT:

- ☐ 3 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

## 16. SEED:

- ☐ 1 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL
- ☐ 1 Cheek: 1 = ROUNDED 2 = ANGULAR
- ☐ 1 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG
- ☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED
- ☐ 5 Phenol reaction: 1 = IVORY 2 = FAWN 3 = LT. BROWN  
(See instructions): 4 = BROWN 5 = BLACK
- ☐ 3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify)
- ☐ 0 7 MM. LENGTH ☐ 0 3 MM. WIDTH ☐ 4 3 GM. PER 1000 SEEDS

## 17. SEED CREASE:

- ☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'  
2 = 80% OR LESS OF KERNEL 'CHRIS'  
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'
- ☐ 2 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'  
2 = 35% OR LESS OF KERNEL 'CHRIS'  
3 = 50% OR LESS OF KERNEL 'LEMHI'

## 18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 2 STEM RUST (Races) QSH, RHMS ☐ 2 LEAF RUST (Races) CBC, KGB ☐ 2 STRIPE RUST (Races) onspec. ☐ 0 LOOSE SMUT
- ☐ 0 POWDERY MILDEW ☐ 0 BUNT ☐ OTHER (Specify)

## 19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 SAWFLY ☐ 0 APHID (Bydv.) ☐ 0 GREEN BUG ☐ 0 CEREAL LEAF BEETLE
- ☐ OTHER (Specify) HESSIAN FLY ☐ 0 GP ☐ 0 A ☐ 0 B ☐ 0 C
- RACES: ☐ 0 D ☐ 0 E ☐ 0 F ☐ 0 G

## 20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Solar	Seed size	Solar
Leaf size	Solar	Seed shape	Solar
Leaf color	Solar	Coleoptile elongation	Solar
Leaf carriage	Solar	Seedling pigmentation	Solar

## INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- (b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

## EXHIBIT D

ADDITIONAL DESCRIPTION OF THE VARIETY

Variety 711 is a cultivar of Triticum aestivum L. with spring growth habit. The kernels are free threshing. The hard red kernels are ovate with rounded cheeks. The crease is narrow and middeep. The brush is short and not collared. Seed size is about 7mm long by 3mm wide. The germ is small. Phenol reaction is black. The spike is awned, middense, and basically oblong in shape. The white glumes are glabrous. Shoulders are oblique to wanting. The wide glumes are medium in length. The beak is acuminate. The last rachis internode is smooth.

Variety 711 is a semidwarf wheat of approximately the same height of Prodx or 3-4 cm taller than Solar. Resistance to lodging is good. The relative maturity of this variety is earlier than that of Solar. Variety 711 has good resistance to shattering. Variety 711 is resistant to stripe rust (Puccinia glumarum) and stem rust (P. graminis f. sp tritici) and moderately resistant to leaf rust (P. recondita) based on adult field reaction in the field in 1979.

<u>Stem Rust Race</u>	<u>Reaction</u>
QSHS	;
RHMS	;
RHRS	;
RKQS	;
RTQQ	;
TLMH	;
TNMH	;
TNMK	;
<u>Leaf Rust Race</u>	<u>Reaction</u>
CBC	;
KGB	;

The coleoptile color is white and seedling anthocyanin is absent. Juvenile plant growth is erect. Plant color at booting is green. Waxy bloom is not present on the flag stem and sheath. Leaf blades and sheath are not hairy. The auricles are hairy and have no anthocyanin. The stem is hollow and has no anthocyanin. Usually three nodes originate from the node above ground. The flag leaf is recurved at boot stage and not twisted. Plant color is green; anther color is yellow.

Overall quality for bread is slightly better than that of Solar. Test weight is excellent. Protein tends to be about equal to that of Solar.



## EXHIBIT D

Table 2. Height Comparisons of Variety 711 and Solar.

Year and Location	<u>Variety 711</u> cm	<u>Solar</u> cm	<u>Difference</u> cm
1978			
Moorhead, MN	81	76	+5
E. Grand Forks, MN	79	70	+9
Bath, SD	74	70	+4
Billings, MT	92	80	+12
Othello, WA	85	73	+12
1979			
E. Grand Forks, MN	77	85	-8
Moorhead, MN	70	66	+4
Portage, Man.	63	72	-9
Billings, MT	<u>82</u>	<u>80</u>	<u>+2</u>
Average	78.1	74.7	+3.4

## EXHIBIT D

Table 3. Date of Heading Comparisons of Variety 711 and Solar. (1)

Year and Location	<u>Variety 711</u>	<u>Solar</u>	<u>Difference</u> (2)
1978			
Moorhead, MN	178	186	-8
E. Grand Forks, MN	173	177	-4
Billings, MT	172	176	-4
Othello, WA	158	160	-2
1979			
E. Grand Forks, MN	185	188	-3
Moorhead, MN	189	194	-5
Portage, Man.	202	203	-1
Billings, MT	<u>169</u>	<u>174</u>	<u>-5</u>
Average	178	182	-4

(1) Days from January 1, July 1 = 181.

(2) Negative values indicate earlier heading for Variety 711.

## EXHIBIT D

Table 4. Relative Maturity Comparison of Variety 711 and Solar (1)

Year and Location	<u>Variety 711</u>	<u>Solar</u>	<u>Difference</u>
1978			
E. Grand Forks, MN	5	7	-2
Billings, MT	3	5	-2
Othelo, WA	5	5	0
1979			
Moorhead, MN	5	6	-1
Portage, Man.	2	7	-5
Billings, MT	<u>2</u>	<u>2</u>	<u>0</u>
Average	3.7	5.3	-1.6

(1) Scale of 1-9 with 1=very early and 9=very late.

## EXHIBIT D

Table 5. Disease Response in the Field

Year and Location	Variety 711		Solar		
	Leaf Rust(1)	Stem Rust(1)	Stripe Rust(2)	Leaf Rust(1)	Stem Rust(1) Stripe Rust(2)
1978					
Moorhead MN	0	-	-	0	-
E. Grand Forks, MN	0	0	0	0	-
Billings, MT	0	-	0	0	0
Othello, WA	0	-	1	0	2
1979					
E. Grand Forks, MN	TS	-	-	0	-
Moorhead, MN	10S	R	-	10S	R
Billings, Mt	-	-	0	-	0

(1) Percent severity and reaction: R = resistant, M= moderately resistant, S = susceptible, T= Trace.  
 (2) Scale of 0-9 with 0 = none and 9 = 100%

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## EXHIBIT D

Table 6. Comparison of Variety 711 and Solar for Lodging (1)

Year and Location	Variety 711	Solar	Difference
1978			
Moorhead, MN	3	5	-2
E. Grand Forks, MN	2	2	0
Bath, SD	1	1	0
Billings, MT	1	2	-1
Othello, WA	4	7	-3
1979			
E. Grand Forks, MN	2	7	-5
Moorhead, MN	2	2	0
Billings, MT	<u>1</u>	<u>2</u>	<u>-1</u>
Average	2.0	3.5	-1.5

(1) Scale from 1-9 with 1 erect and 9 flat.

## EXHIBIT D

Table 7. Comparison of Variety 711 and Solar for Shattering (1)

Year and Location	Variety 711	Solar	Difference
1978			
Moorhead, MN	1	1	0
Bath, SD	1	1	0
Billings, MT	1	1	0
Othello, WA	0	0	0
1979			
Billings, MT	<u>1</u>	<u>1</u>	<u>0</u>
Average	.80	.80	0

(1) Scale of 0-9 with 0 = none and 9 = 100%.

## EXHIBIT D

Table 8. Comparison of Variety 711 and Solar for Quality Characteristics, 1978.

Characteristic	LOCATION					
	E. Grand Forks, MN		Billings, MT		Othello, WA	
	Variety 711	Solar	Variety 711	Solar	Variety 711	Solar
Test wt, kgl hl	84.1	84.4	78.3	80.0	77.2	76.4
Protein %	13.30	12.90	13.00	13.50	13.00	13.15
Extraction %	75.8 VG-	74.4 G+	74.8 VG-	74.7 VG-	74.6 VG-	74.3 G+
Farinograph						
Absorption	62.3	61.0	63.2	64.4	60.3	61.2
Peak	5.75	5.00	5.75	4.75	6.25	6.25
Stability	8.00	6.50	11.00	7.00	7.50	7.50
MTI	40	45	30	40	45	55
Valorimeter	60	58	63	58	63	61
Flour Ash	.475	.434	.444	.414	.439	.420
Protein	12.40	11.90	12.00	12.50	12.10	12.15
Bake Absorption	65.0 G	64.0 G	65.5 G+	67.0 VG-	62.5 G-	64.5 G
Mixing Time	3.00 G	2.75 G-	2.75 G-	2.75 G-	3.50 G	3.25 G
Dough Characteristics	6 G	5 G-	6 G	5 G-	5 G-	5 G-
Loaf Volume, cc	920 G	950 G	990 VG	955 G	880 G	895 G-
Grain	6 G	6 G	5 G-	5 G-	4 F	5 G-
Texture	6 G	5 G-	5 G-	5 G-	5 G-	5 G-
Crumb Color	97 CR	97	97 CR	97 G	97 Dull	97 Sl.Dull
Bake Score	30 G	27 G-	28 G-	26 G-	25 G-	26 G-
Total Score	60 G	55 G-	57 G	56 G-	53 G	54 G-

## EXHIBIT D

Table 9. Comparison of Variety 711 and Solar for Quality Characteristics, 1979.

Characteristic	Moorhead, MN	
	Variety 711	Solar
Test wt, kgl hl	82.4	82.0
Protein %	14.25	13.70
Extraction %	72.8 G	73.4 G
Farinograph		
Absorption	60.0	60.2
Peak	8.00	6.25
Stability	14.50	12.00
MTI	25	35
Valorimeter	71	63
Flour Ash	.480	.440
Protein	13.25	12.70
Bake Absorption	64.0 G	63.0 G
Mixing Time	5.00 VG	4.50 VG-
Dough Characteristics	6 G	6 G
Loaf Volume, cc	1000 VG	1000+ Ex-
Grain	6 G	6 G
Texture	6 G	6 G
Crumb Color	97 G	97 G
Bake Score	34 VG-	34 VG-
Total Score	64 G	64 G



ASSIGNMENT OF UNITED STATES PLANT  
VARIETY PROTECTION CERTIFICATES

In consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Northrup King Co., a Delaware corporation having an office at 1500 Jackson Street N.E., Minneapolis, Minnesota 55413, does hereby sell, assign, transfer and convey to Rohm and Haas Seeds Inc., a Delaware corporation, Independence Mall West, Philadelphia, Pennsylvania 19105, the entire right, title and interest in and to the following United States Plant Variety Protection Certificates together with all the rights described and claimed therein:

<u>Certificate Number</u>	<u>Variety</u>	<u>Date Issued</u>
7500005	Prodax	June 30, 1975
7800010	Solar	March 29, 1979
8200002	Walera	June 17, 1982
8100013	711	December 10, 1981
	715	Applied for in 1983
8200033	817	June 17, 1982
8200094	830	September 23, 1982
8200006	835	March 11, 1982
7200038	McNair 701	February 26, 1974
7700084	McNair 1003	August 10, 1978
7500006	McNair 1813	May 1, 1975
7200037	McNair 4823	April 8, 1975
	RHS 8232	Applied for in 1984

the same to be held and enjoyed by said Rohm and Haas Seeds Inc. for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives, for the full term or terms for which said Certificates are or may be granted or reissued, as fully and entirely as the same would have been held and

enjoyed by said Northrup King Co. if this assignment and sale had not been made; together with all claims for damages by reason of past infringement of said Certificates, including the right to sue for and collect the same for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, Northrup King Co. has caused this assignment to be executed by its duly authorized officer, effective the 20<sup>TH</sup> day of JULY, 1984.

NORTHRUP KING CO.

By: George L. Jones

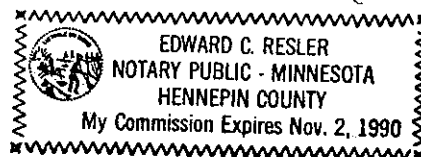
(CORPORATE SEAL)

STATE OF MINNESOTA     )  
                                      ) ss.  
COUNTY OF HENNEPIN    )

On this 20<sup>TH</sup> day of JULY, 1984, before me, a Notary Public in and for the county and state aforesaid, personally appeared GEORGE L. JONES, to me personally known, who, being by me duly sworn, did say that he is the PRESIDENT of Northrup King Co.; that the seal affixed to the foregoing assignment is the corporate seal of Northrup King Co. and that the assignment was executed in behalf of Northrup King Co. by authority of its board of directors; and did acknowledge the assignment to be the free act and deed of Northrup King Co.

Witness my hand and seal the day and year set forth above.

Edward C. Resler  
Notary Public



# ASSIGNMENT

8100013

WHEREAS, Rohm and Haas Seeds Inc., a Delaware corporation, with its principal offices at Independence Mall West, Philadelphia, Pennsylvania 19105 ("Rohm and Haas Seeds"), is the owner of the entire right, title and interest to the following varieties, U.S. Plant Variety Certificates and applications therefore:

<u>Variety</u>	<u>Certificate No.</u>	<u>Grant Date</u>
Prodax	7500005	06/30/75
Solar	7800010	03/29/79
711	8100013	12/10/81
Walera	8200002	06/17/82
715	8300068	01/31/86
835	8200006	03/11/82
817	8200033	06/17/82
830	8200094	09/23/82
Norak	8500105	03/11/88

	<u>Application No.</u>	<u>Filing Date</u>
Bighorn	8500109	04/12/85
Pony	8500107	04/12/85
Rodeo	8500106	04/12/85

WHEREAS, HybriTech Seed International, Inc., a Delaware corporation and wholly-owned subsidiary of Monsanto Company, with its principal offices at 800 North Lindbergh Boulevard, St. Louis, Missouri 63167 ("HybriTech") is desirous of acquiring the entire interest in the aforementioned varieties, certificates and applications;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Rohm and Haas Seeds does hereby sell, assign and transfer unto HybriTech, the entire right, title and interest in and to the varieties, certificates and applications for its use and benefit and for its successors and assigns.

IN TESTIMONY WHEREOF, Rohm and Haas Seeds intending to be legally bound has caused this assignment to be executed by its duly authorized officer.

ROHM AND HAAS SEEDS INC.

By Harold A. Mykay Jr.  
 Title Vice President

COMMONWEALTH OF PENNSYLVANIA )  
 ) SS  
COUNTY OF PHILADELPHIA )

On this 25 day of July, 1988, before me appeared Howard A. Mergelkamp Jr. of Rohm and Haas Seeds Inc., the person who signed this instrument, who acknowledged that he signed it as a free act on behalf of Rohm and Haas Seeds, Inc. with authority to do so.

Elaine Sherman

Notary Public

ELAINE SHERMAN  
Notary Public, Phila., Phila. Co.  
My Commission Expires June 1, 1992

